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SWERNOFSKY LAW GROUP PC
P.O. BOX 390013
MOUNTAIN VIEW, CA 94039-0013

EXAMINER	
NGUYEN, CHAU T	

ART UNIT	PAPER NUMBER
2176	

DATE MAILED: 01/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/590,027	KLEIMAN, STEVEN R.	
	Examiner	**Art Unit**	
	Chau Nguyen	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10 and 12-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10 and 12-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Amendment received on 10/27/2005, has been entered. Claims 1-8, 10 and 12-26 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldrian et al. (Goldrian), U.S. Patent No. 6,026,448, and further in view of Massa et al. (Massa), US. Patent No. 6,658,469.

4. As to independent claim 1, Goldrian discloses a method of sending sending data between a client and a server using at least one of plural data buffer both in said client and in said server (Abstract and col. 2, line 58 – col. 3, line 25 and col. 11, lines 23-47:

a message request is transferred from the request area of the originator buffer (client buffer) to the request area of the recipient buffer (server buffer)).

However, Goldrian does not explicitly disclose sending, from said client to said server, an address of a client data buffer located within said client, said address of said client data buffer for a data transfer responsive to a size of a data block to be transferred; and transferring said data block between said client and said server using said client data buffer and a server data buffer from among the plural data buffers in said client and the plural data buffers in said server, said client data buffer and said server data buffer matched to a size of data blocks to be transferred into or out of those data buffers. In the same field of endeavor, Massa discloses a data transfer between two applications or devices 132 and 136 (application 136 is considered as a client and application 132 is a server) (Abstract, col. 11, lines 10-20 and Fig. 5). Massa discloses sending an initial message, which includes information to indicate the size of the data to be transferred from the switch 126 of application 136 (client) to the switch 120 of application 132 (server) via message buffers 148 and 125 (data buffers) (col. 12, lines 13-17). Massa discloses each application's set of receiving buffers may also be large or small (plural data buffers of different sizes in the client and the server) (col. 11, lines 31-53). Also, Massa discloses the remote switch 126 of the server transfers an amount of data equal to the size of the receiving buffer 134 (client's buffer) from the transmission buffer 138 (server's buffer) into the set of receiving buffers 134 (col. 12, lines 42-59). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian to include

sending, from said client to said server, an address of a client data buffer located within said client, said address of said client data buffer for a data transfer responsive to a size of a data block to be transferred; and transferring said data block between said client and said server using said client data buffer and a server data buffer from among the plural data buffers in said client and the plural data buffers in said server, said client data buffer and said server data buffer matched to a size of data blocks to be transferred into or out of those data buffers. The motivation for doing so is to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications.

5. As to dependent claim 2, Goldrian and Massa disclose wherein a request or a response for transferring said data transfer includes at least some control information (Massa, col. 11, lines 21-31 and col. 12, lines 13-17: the data message includes information to indicate the size of the data to be transferred); and

said steps of transferring said data are responsive to said control information (Massa, col. 11, lines 21-31: send a response to the message and the response includes the number of buffers in the set of receive buffers. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian to include a request or a response for said data transfer includes at least some control information and said steps of sending data are responsive to said control information. The motivation for doing so is to provide higher

performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications).

6. As to dependent claim 3, Goldrian and Massa disclose wherein a request or a response for transferring said data includes at least one memory address (Massa, col. 12, lines 42-59: the local switch 120 of client 132 sends a message to the remote switch of server 136, and the message includes the location of the client's buffers) and said steps of sending data are responsive to said memory address, wherein said data is read from or written to a memory in response to said memory address (Massa, col. 12, lines 42-59: the remote switch of server 136 transfers an amount of data equal to the size of the client's buffer from the set of transmission buffers 138 into the set of client's buffer 134).

7. As to independent claim 4, Goldrian discloses a system including

a client and server (Goldrian, Abstract);

a NUMA communication link coupled to said client and server (Goldrian, col. 5, lines 12-16); and

plural data buffers both in said client and in said server for data transfers between said client and said server suing said NUMA communication link (Goldrian, Abstract and col. 2, line 58 – col. 3, line 25, col. 6, line 64 – col. 7, line 29, and col. 11, lines 23-47: a message request is transferred from the request area of the originator buffer (client buffer) to the request area of the recipient buffer (server buffer));

However, Goldrian does not explicitly disclose wherein when data is transferred between said client and said server using said data buffers, an address of a client data buffer located within said client is sent from said client to said server, with said address of said client data buffer for a data transfer responsive to a size of a data block o be transferred, and said client data buffer and a server data buffer from among the plural data buffers are used to transfer said data block, with said client data buffer and said server data buffer matched to a size of said data block to be transferred into or out of those data buffer. In the same field of endeavor, Massa discloses a data transfer between two applications or devices 132 and 136 (application 136 is considered as a client and application 132 is a server) (Abstract, col. 11, lines 10-20 and Fig. 5). Massa discloses sending an initial message, which includes information to indicate the size of the data to be transferred from the switch 126 of application 136 (client) to the switch 120 of application 132 (server) via message buffers 148 and 125 (data buffers) (col. 12, lines 13-17). In addition, Massa discloses each application's set of receiving buffers may also be large or small (plural data buffers of different sizes in the client and the server) (col. 11, lines 31-53). Also, Massa discloses the remote switch 126 of the server transfers an amount of data equal to the size of the receiving buffer 134 (client's buffer) from the transmission buffer 138 (server's buffer) into the set of receiving buffers 134 (col. 12, lines 42-59). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian to include wherein when data is transferred between said client and said server using said data buffers, an address of a client data buffer located within said

client is sent from said client to said server, with said address of said client data buffer for a data transfer responsive to a size of a data block o be transferred, and said client data buffer and a server data buffer from among the plural data buffers are used to transfer said data block, with said client data buffer and said server data buffer matched to a size of said data block to be transferred into or out of those data buffer. The motivation for doing so is to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications.

8. As to dependent claim 5, Goldrian and Massa disclose a byte serial communication link, wherein transferring said data also uses said byte serial communication link (Goldrian, col. 6, lines 3-14).

9. As to dependent claim 6, Goldrian and Massa disclose wherein either said client or server performs processing of information in transferring said data (Abstract and col. 2, line 58 – col. 3, line 25 and col. 11, lines 23-47: a message request is transferred from the request area of the originator buffer (client buffer) to the request area of the recipient buffer (server buffer));

said processing is performed in an order convenient to both said client and server (Goldrian, col. 1, lines 16-23); and

said order is decoupled from an order of transferring said data (Goldrian, col. 1, lines 16-23 and col. 2, line 58 – col. 3, line 25).

10. As to dependent claim 7, Goldrian and Massa disclose wherein transferring said data is responsive to control information in a request or a response for said data transfer (Massa, col. 11, lines 21-31 and col. 12, lines 13-17: the data message includes information to indicate the size of the data to be transferred. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian to include a request or a response for said data transfer includes at least some control information and said steps of sending data are responsive to said control information. The motivation for doing so is to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications).

11. As to dependent claim 8, Goldrian and Massa disclose wherein transferring said data is responsive to a request or a response for said data transfer (Goldrian, Abstract, col. 5, lines 12-16 and col. 7, lines 1-29).

12. As to dependent claim 10, Goldrian and Massa disclose wherein said one or more data buffers also is selected responsive to control information in a request or a response for transferring said data (Massa discloses a data transfer between two applications or devices (each is considered as a client and the other is a server) (Abstract, col. 11, lines 10-20 and Fig. 5). In addition, Massa discloses each application's set of receiving buffers may also be large or small (plural data buffers of

different sizes in the client and the server) (col. 11, lines 31-53). Also, Massa discloses the remote switch 126 of the server transfers an amount of data equal to the size of the receiving buffer 134 (client's buffer) from the transmission buffer 138 (server's buffer) into the set of receiving buffers 134 (col. 12, lines 42-59). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian to include plural data buffers of different sizes in said client and at least one of plural data buffers of different sizes in said server, and selecting a send data buffer and a receive data buffer from among the plural data buffers in said client and the plural data buffers in said server, said send data buffer and said receive data buffer matched to a size of data blocks to be transferred into or out of those data buffers and then transferring said data. The motivation for doing so is to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications).

13. Claims 12-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldrian et al. (Goldrian), U.S. Patent No. 6,026,448, Brock et al. (Brock), US Patent No. 6,499,028 and further in view of Massa et al. (Massa), US. Patent No. 6,658,469.

14. As to independent claims 12, 21, and 25-26, Goldrian discloses a system including a server, said server having a memory including a client communication region and data transfer region, said data transfer region having plural data buffers (Abstract and col. 2, line 58 – col. 3, line 25 and col. 11, lines 23-47);

a remote DMA communication link coupled to said data transfer region (Goldrian, Abstract, and col. 8, line 40 – col. 9, line 49) ;

wherein said client communication region includes information regarding a data transfer into or out of said data transfer region (Goldrian, Abstract, and col. 8, line 40 – col. 9, line 49);

However, Goldrian does not explicitly disclose data buffers of different sizes for data transfers to and from a client, at least some of said data buffers matched to different sizes of data blocks to be transferred into or out of those data buffers and matched to different sizes of data buffers in said client that are also matched to said different sizes of said data blocks to be transferred. Brock discloses a computer system includes a local node is connected with one or more remote nodes; the computer system contemplates a non-uniform memory architecture (NUMA) which performs incoming transactions and outgoing transactions between the local node and the remote nodes (Fig. 1, col. 6, line 37 – col. 7, line 31). Brock also discloses physical address space includes a plurality of memory region, and each is divided into a plurality of memory blocks, and data transaction matched in the corresponding region or memory block sizes (col. 3, lines 40-67 and col. 11, line 35 – col. 12, line 56). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Brock and Goldrian to include plural data buffers of different sizes, at least some of said data buffers matched to sizes of data blocks to be transferred into or out of those data buffers; and wherein said step of sending selects one or more of said data buffers fro a data transfer responsive to a size of data blocks

for said data transfer. Due to variations in memory architecture implementation, page mechanism, caching policies, tuning or optimizing of any given NUMA system is most efficiently achieved with empirically gathered memory transaction data.

However, Goldrian and Brock do not explicitly disclose at least some of data buffers both in said client and in said server matched to sizes of data blocks; and wherein an address of one or more of said server data buffers for said data transfer is selected for a data transfer responsive to a size of data block for said transfer. Massa discloses a data transfer between two applications or devices 132 and 136 (application 136 is considered as a client and application 132 is a server) (Abstract, col. 11, lines 10-20 and Fig. 5). Massa discloses sending an initial message, which includes information to indicate the size of the data to be transferred from the switch 126 of application 136 (client) to the switch 120 of application 132 (server) via message buffers 148 and 125 (data buffers) (col. 12, lines 13-17), then the switch 120 determines if the size of the receive buffers 134 in the client is large enough, and if it is then the switch 126 transfers an amount of data equal to the size of the receive buffers 134, and the switch 126 continues to transfer data into the receiving buffers 134 until all of the data is transferred (col. 12, lines 1-59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian and Brock to include at least some of data buffers both in said client and in said server matched to sizes of data blocks to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications.

15. As to dependent claim 13, Goldrian, Brock and Massa disclose a byte serial communication link coupled to said client communication region (Goldrian, col. 6, lines 3-14).

16. As to dependent claim 14, Goldrian, Brock and Massa disclose a processing element is said server coupled to said data transfer region, said processing element responsive to a request from a client or a response to a client (Goldrian, col. 9, line 64 – col. 10, line 5).

17. As to dependent claim 15, Goldrian, Brock and Massa disclose a processing element in said server coupled to said data transfer region, said processing element responsive to control information in said client communication region (Goldrian, col. 9, line 64 – col. 10, line 5).

18. As to dependent claims 16 and 22-23, Goldrian, Brock and Massa disclose a processing element in said server coupled to said data transfer region, said processing element using information if said data transfer region independently of said remote DMA communication link (Goldrian, col. 4, lines 1-26 and col. 9, line 64 – col. 10, line 5).

19. As to dependent claim 17, Goldrian, Brock and Massa disclose a request from a client or a response to said client having information regarding a location within data

transfer region (Massa, col. 12, lines 42-59: the local switch 120 of client 132 sends a message to the remote switch of server 136, and the message includes the location of the client's buffers) and said steps of sending data are responsive to said memory address, wherein said data is read from or written to a memory in response to said memory address (Massa, col. 12, lines 42-59: the remote switch of server 136 transfers an amount of data equal to the size of the client's buffer from the set of transmission buffers 138 into the set of client's buffer 134. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Massa and Goldrian and Brock to include at least some of data buffers both in said client and in said server matched to sizes of data blocks to provide higher performance and to maximize the communication bandwidth and minimize the communication latency observed by the communicating applications).

20. As to dependent claim 18, Goldrian, Brock and Massa disclose wherein said client communication region stores a request from a client or a response to said client (Goldrian, col. 7, lines 1-29).

21. As to dependent claim 19, Goldrian, Brock and Massa disclose wherein said data transfer region stores a data transfer to or from a client (Goldrian, Abstract, and col. 2, lines 26-57).

22. As to dependent claim 20, Goldrian, Brock and Massa disclose wherein said remote DMA communication link includes a NUMA communication link (Goldrian, col. 4, lines 1-19 and col. 7, lines 15-29).

23. As to dependent claim 24, Goldrian, Brock and Massa disclose wherein said client includes a database server (Goldrian, col. 4, lines 1-19).

Response of Arguments

In the remarks, Applicant(s) argued in substance that

A. The prior art is not seen to disclose or suggest the features of claim 1 "said address of said client data buffer for a data transfer responsive to a size of a data block to be transferred" and "said client data buffer and said server data buffer matched to a size of data blocks to be transferred into or out of those data buffer".

In reply to argument A, Massa discloses a data transfer between two applications or devices 132 and 136 (application 136 is considered as a client and application 132 is a server) (Abstract, col. 11, lines 10-20 and Fig. 5). Massa discloses sending an initial message, which includes information to indicate the size of the data to be transferred from the switch 126 of application 136 (client) to the switch 120 of application 132 (server) via message buffers 148 and 125 (data buffers) (col. 12, lines 13-17). Massa discloses each application's set of receiving buffers may also be large or small (plural

data buffers of different sizes in the client and the server) (col. 11, lines 31-53). Also, Massa discloses the remote switch 126 of the server transfers an amount of data equal to the size of the receiving buffer 134 (client's buffer) from the transmission buffer 138 (server's buffer) into the set of receiving buffers 134 (col. 12, lines 42-59).

B. Brock does not teach the addrèss of the client data buffer is responsive to a size of a data block to be transferred as recited in claim 12.

In reply to argument B, applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Massa discloses sending an initial message, which includes information (address) to indicate the size of the data to be transferred from the switch 126 of application 136 (client) to the switch 120 of application 132 (server) via message buffers 148 and 125 (data buffers) (col. 12, lines 13-17)

C. Nothing in Brock indicates that the sizes of the memory blocks are related to a size of data blocks to be transferred.

In reply to argument C, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the sizes of the memory blocks are related to a size of data blocks to be transferred) are not recited in the rejected claim 12. Although the claims

are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

D) Massa does not teach claim 1's feature of "said client data buffer and said server data buffer matched to a size of data blocks to be transferred into or out of those data buffers."

In reply to argument D, Massa discloses switch 126 of the application 136 (sender or client) sends an initial message, which includes information to indicate the size of the data to be transferred, to switch 120 of the application 132 (receiver or server), the server has posted receiving buffer 134, then the server sends a message to the client, the message includes the location (address) of the server's receiving buffer, after that the client transfers an amount of data equal to the size of the receiving buffer 134 from the transmission buffers 138 (col. 12, lines 13-59). Therefore, the client data buffer 138 and the server data buffer 134 matched to a size of data blocks to be transferred into or out of those data buffers.

24. Applicant's arguments filed 10/27/2005 have been fully considered but they are not persuasive. Please the rejection and response to arguments above.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau Nguyen whose telephone number is (571) 272-4092. The examiner can normally be reached on 8:30 am – 5:30 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Herndon, can be reached on (571) 272-4136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. On July 15, 2005, the Central Facsimile (FAX) Number will change from 703-872-9306 to 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chau Nguyen
Patent Examiner
Art Unit 2176

William L. Bashore
WILLIAM BASHORE
PRIMARY EXAMINER
1/3/2006